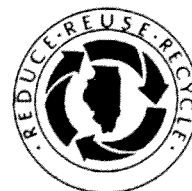


WOOD WASTE DISPOSAL IN ILLINOIS



***Illinois Department of
Energy and Natural Resources***



***Office of Solid Waste
and Renewable Resources***

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INTRODUCTION

The state of Illinois is actively involved in preserving the state's natural resources and protecting the health of Illinois citizens by planning for the most environmentally acceptable solid waste management procedures possible. The Illinois Solid Waste Management Act establishes a preferred hierarchy of methods for dealing with solid waste:

- Volume reduction at the source,
- Recycling and reuse,
- Combustion with energy recovery,
- Combustion for volume reduction, and
- Disposal in landfills.

Effective July 1, 1990, the state of Illinois banned the landfill disposal of landscape waste (grass, leaves, brush, tree trimmings, etc.). Composting has become the preferred method to dispose of these wastes and at the same time return valuable organic material to the Illinois soils from which it came. Alternatives to landfill disposal are certainly possible for many other components of Illinois' waste stream.

This report from the Illinois Department of Energy and Natural Resources is in response to Public Act 86-207 effective January 1, 1991, which requires the department to "study the feasibility of requiring that wood and sawdust from construction waste, demolition projects, sawmills, or other projects or industries where wood is used in a large amount be shredded and composted, and that such wood be prohibited from being disposed of in a landfill."

The most recently available estimate of solid waste disposal in Illinois landfills ["Available Disposal Capacity For Solid Waste In Illinois: Fourth Annual Report", Illinois Environmental Protection Agency (IEPA), October 1990] indicates that 13,171,648 tons of nonhazardous solid waste were disposed of in landfills. A 1988 study completed for IEPA by Franklin Associates estimates the proportion of wood waste that finds its way into the solid waste stream and is subsequently disposed of in Illinois municipal solid waste (MSW) landfills is 3.6 percent for 1990. If these estimates are used in determining the amount of wood waste ending up in Illinois landfills, the figure of 474,179 tons of wood waste per year is generated.

Studies initiated by the Illinois Department of Energy and Natural Resources and conducted in 1990 to determine the origins of wood waste that finds its way into MSW landfills suggest the following breakdown:

Source	Total Wood Waste Generated (Tons/Yr)	Wood Waste Disposed of in Landfills (Tons/Yr)
a. primary wood producers	190,800	500
b. secondary wood product mfg.	443,053	102,908
c. construction/demolition	507,000	> 75,586
d. residential	34,625	34,625
e. commercial	<u>250,000</u>	<u>< 250,000</u>
Total	1,425,478	463,619

While this figure is less than the estimated 474,179 tons per year total based on IEPA and Franklin Associates' formula, the disparity of 10,560 tons per year is a reasonable difference and suggests that recommendations based on presently available data are useful to the General Assembly in any decisions it might make concerning the prohibition of the disposal of wood waste in solid waste landfills produced by targeted sources.

While the total contribution of wood waste to the solid waste stream destined for landfills is estimated at only 3.6 percent or 474,179 tons/year, more than 40 percent is produced by construction/ demolition projects and waste from primary and secondary wood producers, the targeted sources of P.A. 86-207.

PRIMARY WOOD PRODUCERS

Primary wood producers, for the most part sawmills, were surveyed in 1984 by the Illinois Commission on Forestry Development and reported by that body in December 1986 in "Reports of the Education, Multiple Use, Legislative, Economic Development and Forest Resource Analysis Committees," which found that Illinois production stood at approximately 144 million board feet. It is estimated that 50 percent of the wood (trees) that is used to manufacture dimensional lumber becomes waste. This results in a calculated 190,800 tons¹ of wood waste generated.

In 1990, the Department of Energy and Natural Resources surveyed this same group to determine, among other things, how much of the wood waste associated with this industry finds its way into the MSW stream destined to be landfilled. The results of this more recent survey support the earlier findings that nearly all residue is reused; the bulk of it (73 percent) for heat, either by the primary producer or by others who purchase large residue pieces. Much of the remainder (26.7 percent) is reused to produce other wood products, mulch, livestock bedding, or stored as sawdust on the premises of the producer (see Figure 3). Only about 500 tons per year might find its way into the MSW stream. As a consequence, sawmill operators predicted little or no effect on their industry of prohibiting wood waste from the MSW stream.

¹ Average density of Illinois hardwoods estimated at 31.8 lbs/ft³.

On the other hand, such a prohibition would have little consequence on the amount of wood waste destined for landfills from this source.

SECONDARY WOOD PRODUCT MANUFACTURERS

The report of the Illinois Commission on Forestry Development, cited above, estimates that secondary wood products producers used about 1.114 billion board feet of lumber. Industry-wide estimates predict that approximately one third of this will end up as waste from the manufacturing process producing an estimated 444,053 tons² of wood waste. To determine the production and distribution of wood waste from secondary wood products manufacturers, the Department of Energy and Natural Resources resurveyed these producers in 1990. The data collected suggest that while use has increased by 315 million board feet, waste from production has decreased, resulting in an increase of wood waste of only 3,373 tons per year.

Secondary manufacturers report that of the 447,426 tons of wood waste produced by their industry, the bulk (77 percent) is reused as fuel, compost, or other wood product manufacture (see Figure 4). The estimated 23 percent that is sent to landfills makes up the figure of 102,908 tons per year reported. The secondary manufacturers reported a variety of responses to a ban on disposing of wood waste in landfills. Some indicate extreme negative effects, others none or nearly no effect. Many indicated increased efforts to find new markets or uses for the unused portion of their wood wastes and have indicated that increased landfill costs are already exerting pressure on them to further reduce this residue.

CONSTRUCTION/DEMOLITION WOOD WASTE

In the past, construction/demolition wood waste was deposited in specially permitted landfills. Thirty-seven construction/demolition (C/D) landfill sites are listed in the Illinois Solid Waste Site list of May 1989. The Department of Energy and Natural Resources conducted a survey in December 1990 to determine the present status of these sites and found that:

- * 14 of the sites that appear on the IEPA Comprehensive Survey Index (November 1990) have been closed;
- * 12 of the remaining sites were reported by the owner or by field representatives of IEPA as closed or in the process of being closed;
- * 1 site has been removed from the Index;
- * of the remaining 10 sites, 4 were reported by the owner/operator as inactive or as accepting concrete/masonry or road asphalt debris only;
- * of the remaining 6 sites, 3 were used exclusively by owner/operators and received approximately 1,236 tons of wood waste per year, which was deposited as fill;

² Average density of all hard and softwoods used by Illinois industry estimated at 28.7 lbs/ft³.

Wood Waste Disposal Methods Secondary Manufacturers

Results of a 1990 survey conducted by ENR

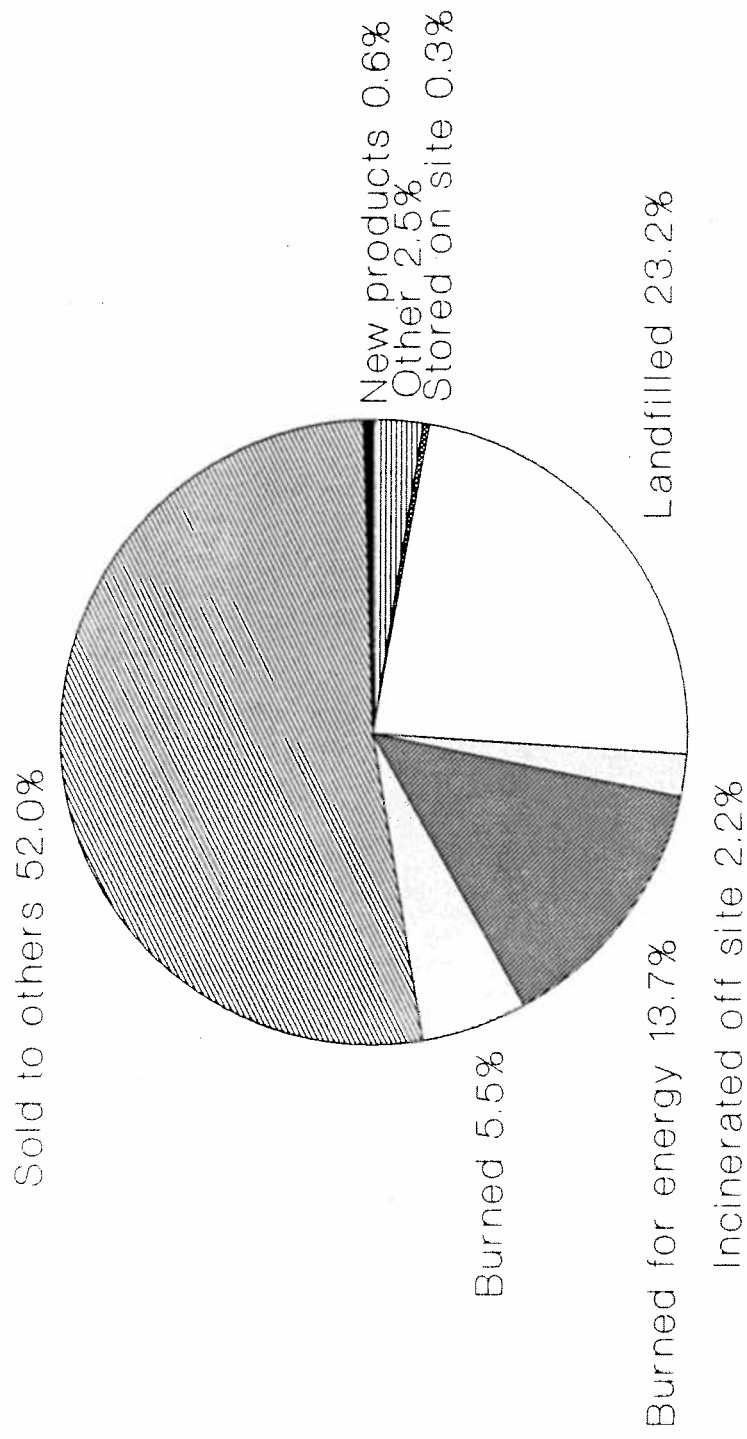


Figure 4.

Wood Product Manufacturing Waste Contaminants

Results of a 1990 survey conducted by ENR

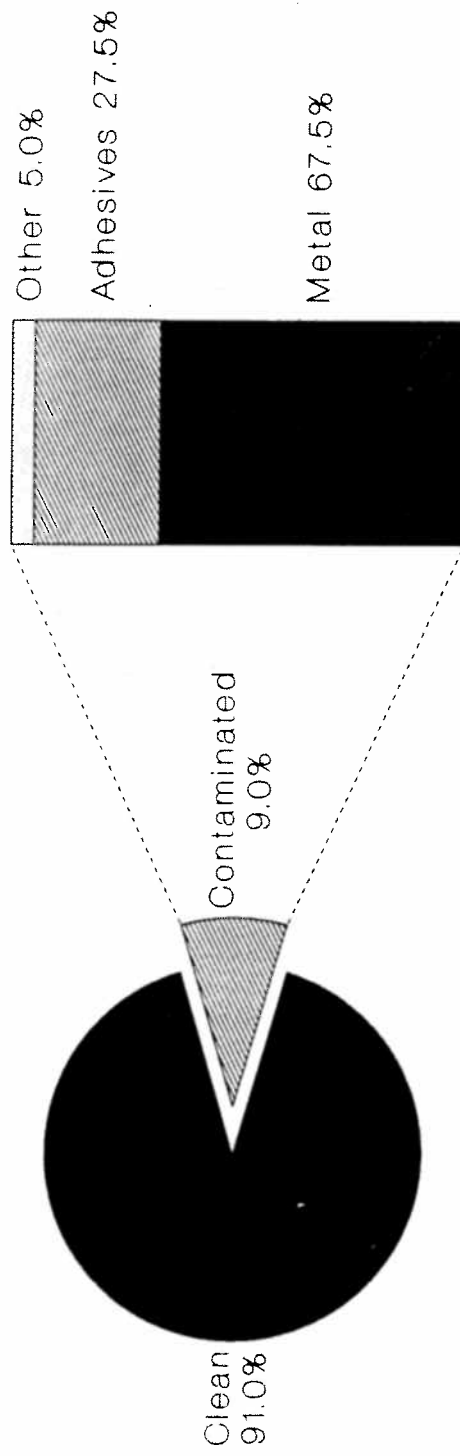


Figure 5.

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